IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1, 3, 9 and 11 in accordance with the following:

1. (CURRENTLY AMENDED) A wavelength allocation method of allocating signal lights on wavelength grids, where previously determined wavelength spacing in the wavelength grids is a base unit, the allocated signal lights being used in wavelength division multiplexing optical transmission in which wavelength division multiplexed signal light obtained by multiplexing signal lights of different wavelengths is transmitted over an optical transmission path, said method comprising:

setting numbers representing how many signal lights to be allocated consecutively in groups of consecutively allocated wavelengths on said wavelength grids; and

consecutively allocating the signal lights on said wavelength grids in groups in accordance with the set numbers, wherein

at least two groups have different numbers of signal lights, but not allocating a signal light on at least one wavelength of said wavelength grid adjacent to each group of consecutively allocated wavelengths on the wavelength grids, and

the numbers representing how many signal lights to be allocated consecutively in groups of consecutively allocated wavelengths are smaller in a short wavelength side than in a long wavelength side of the wavelength grids.

2. (PREVIOUSLY PRESENTED) A wavelength allocation method of signal light according to claim 1,

wherein the numbers representing how many signal lights to be allocated consecutively in groups are set to different values corresponding to wavelength bands so that a four-wave mixing crosstalk amount calculated for each wavelength corresponding to said wavelength grids is equal to or less than a previously set tolerance value.

3. (CURRENTLY AMENDED) A wavelength allocation method of signal ~~light according to claim 2, further~~ lights on wavelength grids, where previously determined wavelength

spacing in the wavelength grids is a base unit, the allocated signal lights being used in wavelength division multiplexing optical transmission in which wavelength division multiplexed signal light obtained by multiplexing signal lights of different wavelengths is transmitted over an optical transmission path, said method comprising:

setting numbers representing how many signal lights to be allocated consecutively in groups of consecutively allocated wavelengths on said wavelength grids;

consecutively allocating the signal lights on said wavelength grids in groups in accordance with the set numbers,

setting a tolerance value α for the amount of four-wave mixing crosstalk;

calculating power in the optical transmission path for signal light of each wavelength corresponding to said wavelength grid;

obtaining a four-wave mixing crosstalk amount β_i (i = wavelength number) corresponding to each wavelength for when the signal lights are allocated on all wavelengths corresponding to said wavelength grids, based on results of calculating the power in said optical transmission path, and also obtaining a four-wave mixing crosstalk amount Υ_{n_1} corresponding to each wavelength for when the signal lights of n waves (where n is an integer of 2 or more) are allocated consecutively on said wavelength grid;

calculating a difference C_n between said four-wave mixing crosstalk amounts β_i and Υ_{n_1} corresponding to the consecutive allocation wavelength number n;

obtaining the consecutive allocation wavelength number n(i) which satisfies a relationship $C_{n+1} < \beta_i - \alpha < C_n$ for the wavelengths where said four-wave mixing crosstalk amount β_i exceeds said tolerance value α; and

determining whether or not to allocate the signal light on each wavelength corresponding to said wavelength grid, in accordance with said numbers n(i), wherein

the numbers representing how many signal lights to be allocated consecutively in groups are set to different values corresponding to wavelength bands so that a four-wave mixing crosstalk amount calculated for each wavelength corresponding to said wavelength grids is equal to or less than a previously set tolerance value, and

at least two groups have different numbers of signal lights, but not allocating a signal light on at least one wavelength of said wavelength grid adjacent to each group of consecutively allocated wavelengths on the wavelength grids.

4. (ORIGINAL) A wavelength allocation method of signal light according to claim 3,

wherein the power in said optical transmission path for said signal light of each wavelength is calculated based on input optical power to said optical transmission path and stimulated Raman scattering occurring in said optical transmission path.

5. (PREVIOUSLY PRESENTED) A wavelength allocation method of signal light according to claim 1,

wherein when a plurality of upper level wavelength groups for collectively processing the signal lights of a plurality of wavelengths in an optical node on said optical transmission path, is provided for said wavelength grids,

for each signal band on which the signal lights are allocated in each of said upper level wavelength groups, the signal lights are allocated consecutively on the wavelength grids within said signal bands, in accordance with the numbers determined based on the wavelength dependence of said generation amount of four-wave mixed light, but the signal light is not allocated on at least one wavelength grid adjacent to the wavelength grids on which said group of signal lights are allocated consecutively.

6. (ORIGINAL) A wavelength allocation method of signal light according to claim 5,

wherein said optical node is at least one of an optical add/drop multiplexing node and an optical compensation node.

7. (ORIGINAL) A wavelength allocation method of signal light according to claim 1, wherein said wavelength grid is equally spaced.

8. (ORIGINAL) A wavelength allocation method of signal light according to claim 7, wherein said equal spacing is 25GHz.

9. (CURRENTLY AMENDED) An optical transmission apparatus for transmitting wavelength division multiplexed signal light obtained by multiplexing a plurality of signal lights of different wavelengths transmitted over an optical transmission path, comprising:

a device which allocates signal lights on a wavelength grid having a previously determined wavelength spacing as a base unit, different numbers being set in advance to represent how many signal lights are allocated consecutively in wavelength bands of the wavelength grid, but does not allocate any signal light on at least one wavelength grid adjacent

to any wavelength band in which signal lights are consecutively allocated, and performing at least one of transmission and reception of wavelength division multiplexed signal light after allocating signal lights on the wavelength grid, wherein

at least two wavelength bands have different numbers of consecutively allocated wavelengths of the wavelength grid to signal lights, and

the numbers representing how many signal lights to be allocated consecutively in groups of consecutively allocated wavelengths are smaller in a short wavelength side than in a long wavelength side of the wavelength grid.

10. (PREVIOUSLY PRESENTED) A wavelength division multiplexing optical transmission system comprising:

an optical transmission apparatus according to claim 9,

wherein wavelength division multiplexed signal light is transmitted via an optical transmission path.

11. (CURRENTLY AMENDED) A wavelength allocation method usable for transmitting a multiplexed optical signal, comprising:

allocating consecutive wavelengths of an equally spaced wavelength grid, to groups of signals, predetermined numbers representing how many consecutive wavelengths of the equally spaced wavelength grid are allocated to signals in each group, each group including at least three signals, ~~and~~ leaving at least one wavelength of the equally spaced wavelength grid unused between adjacent groups, and at least two groups having different predetermined numbers of signals, wherein all the groups of signals are multiplexed to be transmitted, and the predetermined numbers representing how many signal lights to be allocated consecutively in groups of consecutively allocated wavelengths are smaller in a short wavelength side than in a long wavelength side of the equally spaced wavelength grid.

REMARKS

In accordance with the foregoing, the specification and claim 1, 3, 9 and 11 are amended. No new matter is added. Claims 1-11 are pending and under consideration.

ALLOWED CLAIMS

The Office Action indicates that claims 3 and 4 are allowable if rewritten in independent form. Applicants acknowledge with appreciation the indication of allowable subject matter. In response claim 3 is rewritten in independent form. Claim 4 depends from claim 3 and therefore it should be allowed.

CLAIM REJECTIONS UNDER 35 USC §102 AND §103

Claims 1-2, 5 and 7-10 are rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 6,459,515 to Bergano (hereinafter "Bergano "). Claim 6 is rejected under 35 USC §103(a) as being unpatentable over Bergano in view of U.S. Patent No. 5,943,151Grasso et al. ("Grasso").

Bergano discloses a method for transmitting an optical signal having a total number of channels that are divided into a prescribed number of wavebands, wherein in each waveband a state-of-polarization of predetermined odd-numbered channels is oriented to be substantially orthogonal to a state of polarization of predetermined even-numbered channels. (See Bergano's Abstract.)

Claim 1 is amended herewith to specify that "the numbers representing how many signal lights to be allocated consecutively in groups of consecutively allocated wavelengths are smaller in a short wavelength side than in a long wavelength side of the wavelength grids." The claim amendment is supported by the originally filed specification, for example, FIGS. 1, 8 and 11 and specification page 19, the last paragraph.

In col. 3, lines 34-36, Bergano suggests that the number of wavelengths "may or may not" the same in each group. However, all the embodiments illustrated in Bergamo have only groups of eight wavelengths. Bergamo does not anticipate that the numbers are set to different values. Moreover, having different numbers of wavelengths in groups, according to the current method are not a random variation, but as described extensively in the specification, the numbers are selected to limit four-wavelength mixing and cross-talk (see e.g. second paragraph on page 20 of the specification). Therefore, Applicants respectfully submit that Bergamo's suggestion does not anticipate the claimed feature. Moreover, Bergamo does not anticipate the newly recited feature of claim 1 cited above.